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From: "BUREN Michael R" <michael.r.buren@state.or.us>
Sent: Thur 11/15/2012 6:32:32 PM
Subject: Sediment from Harvest Units? Mid-Coast TMDL Sediment TWG
 mburen@odf.state.or.us
http://www.dnr.wa.gov/Publications/fp_cmer_12_1201.pdf

Dear All,

I would like to interact with the paper submitted to the group on October 16th (see email below).

Intro:

The paper was submitted to the Sediment TWG as information to address the issue of Sediment delivery from harvest units. At the last TWG meeting someone raised the question of why we weren't looking into this source of sediment. To-date the TWG has mostly focused on roads (and soon landslides) as sources of sediment input. The papers focus was on studying what was happening directly adjacent to type n perennial streams either in no-harvest buffers or in the "equipment elimination zone" (EEZ). The EEZ is that area where harvest was conducted adjacent to streams but heavy equipment was not allowed near the stream.

Though the paper wasn't looking specifically at the issue of harvest-related input of sediment, I gleaned some of the important points from the paper that seemed applicable to the question of sediment delivery from harvest units. I looked specifically at the sections "Harvest –Related Soil Disturbance" and "Soil Disturbance Associated with Uprooted Trees".

Interesting Points:

- 1) Harvest related soil disturbances which occur beyond about 5 feet from the water's edge do not deliver sediment. All disturbances < 5 feet away from water accounted for 96% of all sediment deliveries.
- 2) Wind throw inside the buffers is a side effect of nearby harvest, so the study looked specifically at the pit created by the toppling of the tree and recorded data on whether sediment was making it to the water. They found that the pit needed to be located within about 8 feet of water to deliver sediment.
- 3) This DNR study also looked at 8 sites where a clear-cut harvest proceeded to the streams edge (harvest allowed but no equipment). All performance measures related to soil disturbance were met except one which involved a situation where there was a landing placed near a type n stream where logs were being yarded across the stream and "sweeping" the ground, creating a large area of disturbance near the stream.

Discussion:

Why does sediment only travel a few feet from areas of disturbed soil within a harvested area? In the Coast Range the upper layer of soil on the forest floor is very loose and covered with a thick layer of organics. Rainfall quickly penetrates through this layer into the soil and will lose any sediment it was carrying within a few feet of travelling subsurface. Rainfall running across soil gouged by yarding percolates sub-surface within a short distance after leaving the disturbed area. If that area is not directly adjacent to water then it follows that the sediment will not make it into the stream.

When I walk a clear-cut I don't see rainfall concentrating into small rivulets of water which are carrying sediment. This study seems to support this observation. One might ask what happens then when all this water goes subsurface, where does it go and what happens when the whole soil thickness at a given location becomes saturated? As the landscape develops, the location on the hill slope where that normally happens is where the top of the small seasonal stream begins – with an incised channel with gravel and bedrock exposed. That is the location on the slope where the site conditions and rainfall come together to form a stream. One might ask what happens in an unusual situation where a site gets more rainfall than normal - the total soil thickness is saturated - don't we then see overland flow from that location with sediment delivery to a stream? In that case a landslide was probably just initiated, or soon will be. We will soon be dealing with landslides in the TWG as a focused type of sediment delivery process so we don't need an additional delivery type from harvest units.

Remember, of course, that we are already dealing with road-related sediment delivery and landslides as focused potential problems, the remaining issue of what happens when harvesting trees and how that affects increases in sediment seems to be a non issue. The CZARA lawsuit which spawned this whole process called out landslides and roads as sediment contributors. I think we should concentrate our efforts on those areas of emphasis.

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Sent: Tuesday, October 16, 2012 9:15 AM

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Subject: Mid-Coast TMDL Sediment TWG - Information on potential Source(s)

Greetings Sediment TWG members,

As part of the source assessment discussion during the Sediment TWG (September 18), one member asked if DEQ was including sediment delivery from silviculture harvest units (as a potential source). Josh indicated that we had not identified this as a potential source, but would look at supporting information provided by TWG members regarding any potential sources.

Dan Avery provided a Report from the Washington DNR on a study that is relevant to the topic, albeit broader in scope. We wanted to share this information with rest of the TWG members:

Results of the Westside Type N Buffer Characteristics, Integrity and Function Study Final Report (CMER 12-1201; Schuett-Hames et al. 2011)

http://www.dnr.wa.gov/Publications/fp_cmer_12_1201.pdf

Although there is not time set aside during tomorrow's TWG meeting for extensive discussion of this particular Report, comments on the report are welcome during discussions or can be provided to the full TWG via email.

Feel free to forward this information to other interested parties.

Cheers,

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